DOCUMENT RESUME

ED 270 949 EC 190 201


AUTHOR Milazzo-Sayre, Laura J.; And Others

TITLE Use of Inpatient Psychiatric Services by Children and Youth under Age 18, United States, 1980. Mental Health Statistical Note No. 175.

INSTITUTION National Inst. of Mental Health (DHHS), Rockville, MD.
REPORT NO DHHS-ADM-86-1451
PUB DATE Apr 86
NOTE 41p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Demography; *Emotional Disturbances; Institutionalized Persons; Mental Disorders; National Surveys; Personality Problems; Placement; *Psychiatric Hospitals; *Psychiatric Services; Psychosis



ABSTRACT

The report examines data from three sample surveys of admissions during 1980 to the inpatient psychiatric services of state and mental hospitals and private psychiatric hospitals and the separate inpatient psychiatric services of non-federal general hospitals. Findings revealed that an estimated 81,532 persons under 18 years were admitted to inpatient psychiatric care in the three settings during 1980. Approximately 95% were 10 to 17 years old, 53% were male, and 82% were white. Those diagnosed with other nonpsychotic disorders represented 24%; pre-adult disorders, 22%; affective disorders, 18%; schizophrenia and related disorders, 12%; alcohol and drug-related disorders, 8% and personality disorders, 7%. Data are analyzed in detail according to four variables (patient diagnosis, referral source to the inpatient service, types of treatment received, and length of stay) and by patient age, sex, race, and type of organization. The bulk of the data is presented in table form. An appendix reviews designs and procedures for the surveys. (CL)



**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

MENTAL HEALTH
Statistical Note No. 175

# Use of Inpatient Psychiatric Services by Children and Youth Under Age 18, United States, 1980

Laura J. Milazzo-Sayre, Paul R. Benson, Marilyn J. Rosenstein, and Ronald W. Manderscheid

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

April 1986

ED270949

## Overview

This Statistical Note is based on findings from three sample surveys of admissions during 1980 to the inpatient psychiatric services of State and county mental hospitals and private psychiatric hospitals, and the separate inpatient psychiatric services of non-Federal general hospitals. These surveys, conducted by the Survey and Reports Branch (SRB), National Institute of Mental Health (NIMH), show that an estimated 81,532 persons under age 18 were admitted to inpatient psychiatric care in these three settings during 1980 (table 1). Approximately 95 percent of these children and youth were between the ages of 10 and 17, 53 percent were male, and 82 percent were white. Twenty-four percent of these children and youth were diagnosed with other nonpsychotic disorders;[1] 22 percent, with pre-adult disorders; 18 percent, with affective disorders; 12 percent, with schizophrenia and related disorders; 8 percent, with alcohol and drug-related disorders; and 7 percent, with personality disorders (table 4). Admissions were distributed across the organization types as follows: State and county mental hospitals, 20 percent; private psychiatric hospitals, 21 percent; and the separate inpatient psychiatric services of non-Federal general hospitals, 59 percent (table 1, percents not shown).

The discussion that follows presents an analysis of four variables (patient diagnosis, referral source to the inpatient service, types of treatment received, and length of stay) by patient age, sex, race, and type of organization. The sources and limitations of the data, as well as a description of sampling errors, are presented in the Technical Appendix.

## Age, Sex, and Race

### Age

The percentage of children and youth admitted to inpatient psychiatric services in 1980 increased dramatically with age (table 1), with about 5 percent of admissions under age 10; 28 percent, between ages 10 and 14; and 67 percent, between ages 15 and 17. This positive relationship between age and relative frequency of inpatient admission generally occurred for all organization types surveyed, both in terms of percentage distribution and rates per 100,000 U.S. civilian population (table 1). This finding replicates that of an earlier NIMH

EC190201

This publication may be reproduced without permission.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES/Public Health Service/Alcohol, Drug Abuse, and Mental Health Administration
NATIONAL INSTITUTE OF MENTAL HEALTH • Division of Biometry and Applied Sciences • Survey and Reports Branch

sample survey of patient admissions conducted in 1975 (Sowder et al. 1981) and strongly suggests that increased age enhances the likelihood that a child or adolescent will be admitted for inpatient treatment.

**Sex**

Males accounted for 53 percent of all admissions of children and youth to inpatient psychiatric services during 1980 (table 1). This percentage is similar to that found in the 1975 NIMH survey of patient admissions (see Sowder et al. 1981). Some variation occurred among organizations examined, with State and county mental hospitals having the highest percentage of male admissions (69 percent), followed by private psychiatric hospitals (56 percent), and non-Federal general hospitals (46 percent). For the latter type of organization, the pattern was relatively consistent across public, nonpublic, and multiservice non-Federal general hospitals.

**Race**

Within each type of inpatient psychiatric service surveyed, whites constituted the majority of admissions under age 18 (table 1). Children and youth from races other than white were more likely to be admitted to State and county mental hospitals and public non-Federal general hospitals than to private psychiatric hospitals. Although about one-quarter of admissions under age 18 to State and county mental hospitals and public non-Federal general hospitals were persons from other races, the percentages of children and youth from other races admitted to nonpublic and multiservice non-Federal general hospitals and private psychiatric hospitals were 16 percent, 14 percent, and 12 percent, respectively. For all inpatient organizations combined, the rates per 100,000 U.S. civilian population did not differ significantly between the two racial groups.

**Age by Sex**

Across all organization types (table 2), males constituted 66 percent of inpatient admissions under age 10, 51 percent of admissions between ages 10 and 14, and 53 percent of admissions between ages 15 and 17. When the sex-age relationship was examined separately by organization, males significantly outnumbered females in percent of admissions under age 10 and between ages 10 and 14 in State and county mental hospitals and in private psychiatric hospitals. In the 15 to 17 age group, males significantly outnumbered females only in State and county mental hospitals. The percentage of males between ages 15 and 17 was highest for State and county mental hospitals (67 percent), compared with private psychiatric hospitals (53 percent) and non-Federal general hospitals (48 percent).

**Age by Race**

For all organization types combined (table 3), whites accounted for 72 percent of inpatient admissions under age 10, 84 percent of admissions between ages 10 and 14, and 82 percent of admissions between ages 15 and 17. Whites outnumbered persons from other races in percent of admissions within each age group under age 18 in private psychiatric hospitals and non-Federal general hospitals. In State and county mental hospitals, whites significantly outnumbered persons from other races only in the 10 to 14 and 15 to 17 age groups.

## Diagnostic Characteristics

For children and youth admitted to inpatient psychiatric services in 1980 (table 4), other nonpsychotic disorders (24 percent) and pre-adult disorders (22 percent) accounted for almost one-half of all diagnoses received. Other frequent diagnoses were affective disorders (18 percent) and schizophrenia and related disorders (12 percent).

Among the different organization types (table 4), for all children and youth under age 18 admitted to inpatient psychiatric services, diagnoses of affective disorders showed the highest relative frequency in private psychiatric hospitals (30 percent), compared with non-Federal general hospitals (17 percent) and State and county mental hospitals (10 percent). Other nonpsychotic disorders predominated in non-Federal general hospitals (32 percent), but were much less frequent in private psychiatric hospitals and State and county mental hospitals (about 13 percent each).

For those under age 10, pre-adult disorders were predominant in private psychiatric hospitals (56 percent) (table 4). For those between the ages of 10 and 14, pre-adult and affective disorders were the predominant diagnoses in private psychiatric hospitals (37 percent and 28 percent, respectively). In addition, affective disorders were more frequent for this age group within private psychiatric hospitals than within the other two organization types (about 11 percent each). Other nonpsychotic disorders predominated in this age group for those admitted to non-Federal general hospitals (40 percent), in comparison with the other two organization types. Pre-adult disorders were the predominant diagnoses of this age group in State and county mental hospitals (48 percent).

For those between the ages of 15 and 17 (table 4), affective disorders were predominant in private psychiatric hospitals (32 percent), compared with non-Federal general hospitals (20 percent) and State and county mental hospitals (9 percent). Alcohol-related disorders were relatively frequent diagnoses in State and county mental hospitals (10 percent), compared with the other two organization types. Diagnoses of drug-related disorders were significantly more frequent among admissions to State and county mental hospitals (14 percent), compared with those admitted to private psychiatric hospitals (4 percent); however, respective percentages did not differ significantly between admissions to State and county mental hospitals and non-Federal general hospitals. Other nonpsychotic disorders showed a higher relative frequency in non-Federal general hospitals (29 percent), compared with private psychiatric hospitals (14 percent); however, respective percentages did not differ significantly between non-Federal general hospitals and State and county mental hospitals.

For all organization types combined, as well as for State and county mental hospitals and non-Federal general hospitals, significant variations were not found between the sexes in their diagnostic distributions (table 5). However, in private psychiatric hospitals, females were more likely than males to have a diagnosis of affective disorders (39 vs. 23 percent), while males were more likely than females to have a diagnosis of schizophrenia and related disorders (16 vs. 9 percent). For males in State and county mental hospitals, diagnoses of pre-adult disorders (28 percent) predominated over other diagnostic groups except schizophrenia and related disorders. Pre-adult disorders also showed the highest relative frequency among males admitted to private psychiatric hospitals (30 percent), but did not differ significantly from affective disorders. Among males admitted to non-Federal general hospitals, other

nonpsychotic and pre-adult disorders (26 percent each) predominated over alcohol-related, drug-related, and personality disorders. Among female admissions to State and county mental hospitals, 22 percent were diagnosed with pre-adult disorders, while only 5 percent were diagnosed with alcohol-related disorders. Among female admissions to private psychiatric hospitals, affective disorders (39 percent) predominated, while among female admissions to non-Federal general hospitals, other nonpsychotic disorders (36 percent) predominated over other diagnostic groups except affective disorders.

With respect to diagnostic variation by race (table 6), significant differences were not found between whites and persons from other races for all organization types combined. However, children and youth from other races admitted to State and county mental hospitals were almost six times as likely as whites to have a diagnosis of schizophrenia and related disorders (34 vs. 6 percent). In private psychiatric hospitals, persons from other races were more than twice as likely as whites to have a diagnosis of schizophrenia and related disorders (25 vs. 11 percent). Among whites admitted to private psychiatric hospitals, diagnoses of affective disorders (30 percent) and pre-adult disorders (27 percent) predominated, while among persons from other races admitted to this setting, diagnoses of affective disorders, schizophrenia and related disorders, and pre-adult disorders predominated (29, 25, and 25 percent, respectively). In non-Federal general hospitals, significant differences were not found between whites and persons from other races in their diagnostic distributions (table 6). However, among whites, other nonpsychotic disorders (35 percent) predominated over other diagnoses, with the exception of pre-adult disorders. Among persons from other races, significant differences were not found in their diagnostic distribution.

## Source of Referral

The children and youth admitted to inpatient psychiatric services during 1980 were referred to care by a number of different types of persons or agencies (tables 7 through 9). These referral patterns varied for children and youth from different sex and racial groups, as well as for those admitted to the different types of inpatient psychiatric services.

For all organization types combined (table 7), significant variations were not found among the sources of referral for children and youth under age 18 admitted to inpatient psychiatric care. However, comparisons by organization type show that family or friends were the most likely sources of referral for children and youth admitted to non-Federal general hospitals (33 percent), with the exception of referrals by private psychiatrists. Compared with those admitted to private psychiatric hospitals (19 percent) and State and county mental hospitals (12 percent), family or friends were more likely to serve as the referral source for admissions to non-Federal general hospitals. For children and youth admitted to private psychiatric hospitals, private psychiatrists were the major sources of referral (31 percent); they were approximately 15 times more likely to serve as the referral source for admissions to this setting, as compared with those admitted to State and county mental hospitals (2 percent). Private psychiatrists were also more likely to serve as the referral source for admissions to non-Federal general hospitals (20 percent), compared with those admitted to State and county mental hospitals. For admissions under age 18 to State and county mental hospitals, courts or correction agencies accounted for nearly one-fourth of all referrals, but the percentage of referrals from these sources did not differ significantly

from the respective percentages of referrals by outpatient psychiatric clinics or services and family or friends. Compared with admissions to private psychiatric hospitals (9 percent) and non-Federal general hospitals (6 percent), courts or correction agencies were more likely referral sources for admissions to State and county mental hospitals. Police were a more likely referral source for admissions to State and county mental hospitals (8 percent), compared with those admitted to private psychiatric hospitals (2 percent).

When referral patterns were examined by sex for all organization types combined (table 8), significant differences were not found between the sexes, nor did any single referral source predominate among males or females. When examined by organization type, results showed that for private psychiatric hospitals, private psychiatrists were the most likely sources of referral for both males (30 percent) and females (32 percent). The second most likely sources of referral to this setting were family or friends, who accounted for 18 percent of referrals for males and 21 percent of referrals for females.

For males admitted to non-Federal general hospitals, referrals by family or friends were the most common (30 percent) among the reported sources of referral, with the exception of referrals by private psychiatrists, whose proportion (21 percent) did not differ significantly from that of family or friends (table 8). Among females admitted to this setting, family or friends were the most likely sources of referral (36 percent). Unlike the other two organization types, a single referral source did not predominate in the referral patterns for male and female admissions to State and county mental hospitals (table 8).

Among males, referrals by private psychiatrists were at least 12 times more likely in private psychiatric hospitals (30 percent) and almost 10 times more likely in non-Federal general hospitals (21 percent) than in State and county mental hospitals (2 percent) (table 8). In addition, males were more than twice as likely to be referred by family or friends to non-Federal general hospitals (30 percent) than to State and county mental hospitals (12 percent). By contrast, males admitted to State and county mental hospitals were almost five times more likely to be referred from outpatient psychiatric clinics or services than were males admitted to non-Federal general hospitals (14 vs. 3 percent) (table 8). Courts or correction agencies were much more likely to refer males to State and county mental hospitals, compared with private psychiatric hospitals and non-Federal general hospitals (24, 11, and 9 percent, respectively).

Among females, referrals by courts or correction agencies were much more likely in State and county mental hospitals (24 percent), compared with private psychiatric hospitals (6 percent) and non-Federal general hospitals (5 percent) (table 8). Family or friends were likely sources of referral for female admissions to non-Federal general hospitals (36 percent), compared with female admissions to private psychiatric hospitals (21 percent) and State and county mental hospitals (13 percent).

Like overall referral patterns by sex, significant differences were not found in overall referral patterns by race (table 9). Among whites, referrals were more likely to be from family or friends, compared with other sources, with the exception of courts or correction agencies and private psychiatrists. Among persons from other races, a single referral source did not predominate.

For State and county mental hospitals (table 9), white children and youth were about four times more likely to be referred by family or friends (12 percent) than by private psychiatrists or other physicians (3 percent each); significant variations were not found in the referral patterns for children and youth from other races in this setting. For private psychiatric hospitals, whites were considerably more likely than persons from other races to be referred by private psychiatrists (33 vs. 19 percent). For non-Federal general hospitals, one-third of the children and youth from each racial group were referred by family or friends; however, this percentage did not differ significantly from the percentage of whites referred by private psychiatrists.

## Types of Treatment[2]

The types of treatment received by persons under age 18 admitted to inpatient psychiatric services in 1980 are presented in tables 10 through 12. Overall, the three leading types of treatment provided to admissions under age 18 during their hospitalization (table 10) were individual therapy (89 percent), activity therapies (73 percent), and group therapy (62 percent). Drug therapy (42 percent) and family therapy (38 percent), as well as social skill training (36 percent) and educational training (35 percent), were also provided frequently.

Individual therapy (table 10) was the treatment provided most often in private psychiatric hospitals (96 percent), non-Federal general hospitals (90 percent), and State and county mental hospitals (79 percent). Activity therapies and group therapy were the next leading types of treatment provided in both private psychiatric hospitals and non-Federal general hospitals.

Treatment variation across organizations was slight (table 10). Family and group therapy were generally provided more frequently in private psychiatric hospitals and less frequently in non-Federal general hospitals and State and county mental hospitals. Drug therapy, self-care skill training, and social skill training did not show significant variation among organization types. State and county mental hospitals were least likely to provide individual therapy, and non-Federal general hospitals were least likely to provide educational training. Private psychiatric hospitals were more likely than State and county mental hospitals to provide activity therapies.

When examined overall, treatment variations were not found between the sexes (table 11). Males were more likely to receive individual therapy (88 percent) than other types of treatment, with the exception of activity therapies and group therapy; females were also more likely to receive individual therapy (90 percent) than other types of treatment, with the exception of activity therapies.

Within each organization type surveyed, treatment variations were not found between the sexes (table 11). Individual therapy ranked first among the various types of treatment provided to both males and females in private psychiatric hospitals (96 percent each) and non-Federal general hospitals (91 and 89 percent, respectively); activity therapies and group therapy followed for both sexes in these settings. However, among females in non-Federal general hospitals, a significant variation was not found between group and drug therapy. Among males in State and county mental hospitals, individual therapy (75 percent) predominated over other types of treatment, with the exception of activity therapies and group therapy; among females in

this setting, individual therapy (89 percent) predominated over other types of treatment except activity therapies.

When each sex was examined across organization types, significant variations were found (table 11). Males in non-Federal general hospitals were more likely to receive individual therapy than were males in State and county mental hospitals (91 vs. 75 percent). Males in private psychiatric hospitals were more likely than males in non-Federal general hospitals to receive self-care skill (22 vs. 12 percent) and educational training (47 vs. 28 percent); males in private psychiatric hospitals were also more likely than males in State and county mental hospitals to receive any type of psychotherapy (individual, family, or group) and activity therapies. Females were most likely to receive family therapy in private psychiatric hospitals (53 percent); more likely to receive group therapy in private psychiatric hospitals (77 percent) than in non-Federal general hospitals (55 percent); and least likely to receive educational training in non-Federal general hospitals (22 percent) (table 11).

When overall treatment patterns were examined by race (table 12), significant differences were not found between whites and persons from other races. However, whites were more likely to receive individual therapy (89 percent) than other types of treatment, with the exception of activity therapies. Persons from other races were also more likely to receive individual therapy (91 percent) than other types of treatment, with the exception of activity therapies and group therapy. For private psychiatric hospitals and non-Federal general hospitals, significant treatment variations did not occur between whites and persons from other races. In State and county mental hospitals, however, persons from other races were more likely than whites to receive drug therapy (63 vs. 36 percent).

Significant treatment variations emerged by race when comparisons were made across organization types (table 12). Whites under age 18 were most likely to receive individual therapy in private psychiatric hospitals (96 percent); next most likely in non-Federal general hospitals (90 percent); and least likely in State and county mental hospitals (77 percent). Whites were also most likely to receive other types of psychotherapy (family and group) in private psychiatric hospitals, compared with the other two settings. Other differences in treatment patterns also emerged for whites across organization types. Educational training was least likely to be provided to whites in non-Federal general hospitals (26 percent), compared with whites in State and county mental hospitals and private psychiatric hospitals (48 percent each); also, whites admitted to private psychiatric hospitals were significantly more likely to receive activity therapies than whites admitted to State and county mental hospitals (80 vs. 62 percent).

Among persons from other races (table 12), significant treatment variations did not occur across organization types, with the exception of educational training, which was least likely to be provided in non-Federal general hospitals (19 percent), compared with State and county mental hospitals (57 percent) and private psychiatric hospitals (44 percent).

## Length of Stay

Twenty-three percent of all admissions under age 18 to inpatient psychiatric services in 1980 were hospitalized for a week or less, 60 percent for 28 days or less, 78 percent for 56 days or less, and 87 percent for 90 days or less (table 13, percents not shown). Children and youth admitted to non-Federal

general hospitals were most likely to be hospitalized for 28 days or less, compared with admissions under age 18 in State and county mental hospitals and private psychiatric hospitals. About 75 percent of those admitted to non-Federal general hospitals were released within 28 days, compared with 42 percent for private psychiatric hospitals and 38 percent for State and county mental hospitals (table 13, percents not shown). State and county mental hospitals were most likely to retain patients for more than 90 days, compared with the other two settings. About 35 percent of those under age 18 admitted to State and county mental hospitals had inpatient stays greater than 90 days, compared with 24 percent for private psychiatric hospitals and only 2 percent for non-Federal general hospitals.

When length of stay was examined by sex (table 14) within the different types of organizations surveyed, females tended to spend about the same amount of time as males in all three settings. About 40 percent of females and 43 percent of males were released from private psychiatric hospitals within 28 days, while 29 percent of females and 42 percent of males were released from State and county mental hospitals within 28 days (table 14, percents not shown). In non-Federal general hospitals, 81 percent of females and 68 percent of males were released within 28 days (table 14, percents not shown).

When length of stay was examined by race (table 15), some variation was noted across organization types. Whites and persons from other races in non-Federal general hospitals tended to be released more quickly than were whites and persons from other races in State and county mental hospitals and private psychiatric hospitals. About 72 percent of whites in non-Federal general hospitals were released within 28 days, compared with 41 percent of whites in private psychiatric hospitals and 38 percent of whites in State and county mental hospitals. Among persons from other races, those released within 28 days accounted for 86 percent in non-Federal general hospitals, 46 percent in private psychiatric hospitals, and 40 percent in State and county mental hospitals.

**Median Length of Stay[3]**

The overall median length of stay for children and youth showed considerable variation across organization types (table 16). Persons under age 18 admitted to State and county mental hospitals had the longest median stay (54 days); those admitted to private psychiatric hospitals had the next longest median stay (36 days); and those admitted to non-Federal general hospitals had the shortest median stay (14 days). This pattern also held for both sexes and for both racial groups.

In addition, this pattern occurred across organization types for admissions under age 10 and between ages 10 and 14 (table 16). For admissions between ages 15 and 17, a significant difference was not found between the median stay in State and county mental hospitals (29 days) and private psychiatric hospitals (33 days), although the median stay in non-Federal general hospitals was considerably shorter (12 days).

Differences in median stays by age, sex, and race emerged within each organization type surveyed (table 16). Where comparisons could be made in State and county mental hospitals, children and youth in the 15 to 17 age group had the shortest median stay for both sexes and for both racial groups.

In private psychiatric hospitals, males between ages 15 and 17 had the shortest median stay (31 days), compared with males under age 10 (48 days) and between

ages 10 and 14 (42 days); females in the 10 to 14 age group had the longest median stay in this setting (41 days), compared with females under age 10 (33 days) and between ages 15 and 17 (35 days). In non-Federal general hospitals, males in the 10 to 14 age group had the longest median stay (32 days), compared with males under age 10 (18 days) and between ages 15 and 17 (13 days); females under age 10 had the longest median stay in this setting (26 days), compared with females from the other age groups under age 18 (11 days each).

Among organization types, males under age 10 and females between ages 10 and 14 had the longest median stays in State and county mental hospitals, compared with private psychiatric hospitals and non-Federal general hospitals (table 16). Males in all age groups under age 18 and females between ages 10 and 14 and between ages 15 and 17 had the shortest median stays in non-Federal general hospitals.

In private psychiatric hospitals and non-Federal general hospitals, whites between ages 15 and 17 had shorter median stays than whites under age 10 and between ages 10 and 14 (table 16); for persons from other races in these settings, significant differences were not found among the age groups. Among organization types, whites and persons from other races in each age group had the shortest median stays in non-Federal general hospitals, compared with the other two settings. Whites in the 10 to 14 age group and persons from other races under age 10 and between ages 10 and 14 had the longest median stays in State and county mental hospitals (92 days each), compared with the other two settings; however, persons from other races in the 15 to 17 age group had the longest median stay in private psychiatric hospitals (30 days).

When the median stays for children and youth by selected primary diagnoses were examined across organization types (table 17), the patterns which emerged were similar to the overall pattern across organization types. Admissions with diagnoses of affective disorders, schizophrenia and related disorders, and personality disorders had the longest median stays in State and county mental hospitals; the next longest median stays in private psychiatric hospitals; and the shortest median stays in non-Federal general hospitals. Admissions diagnosed with pre-adult disorders also had the longest median stay in State and county mental hospitals (68 days), compared with private psychiatric hospitals and non-Federal general hospitals.

Within State and county mental hospitals, admissions with diagnoses of schizophrenia and related disorders had the longest median stays (91 days), while admissions diagnosed with personality disorders had the shortest median stays (54 days) (table 17). In private psychiatric hospitals, admissions diagnosed with affective disorders had longer median stays (44 days) than admissions diagnosed with personality and pre-adult disorders (37 and 34 days, respectively). Admissions to non-Federal general hospitals diagnosed with pre-adult disorders had the longest median stay (29 days), compared with admissions diagnosed with schizophrenia and related disorders (18 days), personality disorders (16 days), and affective disorders (15 days).



BEST COPY AVAILABLE

**Footnotes**

[1]During the data collection period for the present surveys, diagnostic standards were changing in the United States due to the adoption by the American Psychiatric Association of the third edition of the Diagnostic and Statistical Manual of Mental Disorders (1980), commonly called DSM-III. A number of major diagnostic changes and modifications relating specifically to childhood and adolescent disorders are reflected in this new edition of the manual. For example, more than four times as many diagnostic categories are included in DSM-III under the heading, "Disorders First Evident in Infancy, Childhood, and Adolescence," as compared with the 1968 version of the manual, DSM-II (Spitzer and Cantwell 1980). The diagnostic classification system employed in the present report was developed by the Division of Biometry and Epidemiology, NIMH, in an attempt to take into account both DSM-II and DSM-III diagnoses reported by institutional respondents in 1980 (see Thompson and Goldman 1983). It was found that, in most cases, DSM-II and DSM-III categories can be translated into one another only by using aggregate groups for both diagnostic systems. The extent to which these various diagnostic changes and associated "translation" problems affect the reliability and validity of the diagnostic data presented in this report cannot be determined from the data collected. A detailed listing of the translation codes can be found in NIMH Statistical Note 163.

The diagnostic groupings used in this publication are defined as follows:

| Selected diagnoses | Combined DSM-II/ICDA-8* | Combined DSM-III/ICD-9-CM* |
|---|---|---|
| Alcohol-related disorders ..... | 291; 303; 309.13 | 291; 303; 305.0 |
| Drug-related disorders ..... | 294.3; 304; 309.14 | 292; 304; 305.1-305.9; 327; 328 |
| Affective disorders ..... | 296; 298.0; 300.4 | 296; 298.0; 300.4; 301.11; 301.13 |
| Schizophrenia and related disorders** | 295 | 295; 299 |
| Personality disorders ..... | 301 | 300.16; 300.19; 301 (except 301.11 and 301.13); 312.3 |
| Pre-adult disorders ..... | 307.0-307.2; 308 | 312 (except 312.3); 313.0; 313.21; 309.21; 314 |
| Other nonpsychotic disorders ..... | 302; 305; 306; 307.3-307.4 | 300.89; 300.9; 302; 306; 307.0-307.3; 307.46; 307.5-307.7; 307.9; 309 (except 309.21 and 309.81); 311; 313.1; 313.22-313.9; 315; 316 |
| Other: Mental retardation; non-alcoholic or drug-related organic disorders; other psychoses; anxiety/somatoform/dissociative (other neuroses); social maladjustments; no mental disorder; diagnosis deferred (undiagnosed) | 290; 292; 293; 294 (except 294.3); 297; 298.1-298.9; 299; 300.0-300.3; 300.5-300.9; 309.0; 309.2-309.9; 310-318; 319.0 | 290; 293; 294; 297; 298.1-298.9; 300.0-300.15; 300.2-300.3; 300.5-300.81; 307.4 (except 307.46); 307.8; 308; 309.81; 310; 317-319; 799.9; "V" codes |

***DSM-II** Diagnostic and Statistical Manual of Mental Disorders, Second Edition. Washington, D.C.: American Psychiatric Association, 1968.

**ICDA-8** International Classification of Diseases, Adapted For Use in the United States, 8th Revision. PHS Pub. No. 1693. Washington, D.C.: U.S. Govt. Print. Off.

**DSM-III** Diagnostic and Statistical Manual of Mental Disorders, Third Edition. Washington, D.C.: American Psychiatric Association, 1980.

**ICD-9-CM** International Classification of Diseases, 9th Revision, Clinical Modification, Vol. I. DHHS Pub. No. (PHS)80-1260. Washington, D.C.: U.S. Govt. Print. Off.

**For admissions under age 10, the reported diagnoses included in the category "schizophrenia and related disorders" include disorders of childhood, such as childhood schizophrenia; infantile autism; and unspecified psychoses with origin specific to childhood (e.g., childhood onset pervasive developmental disorder). For admissions between ages 10 to 14, the predominant disorders reported in this diagnostic category are: childhood, residual, and unspecified (undifferentiated) schizophrenia; schizophreniform disorder; and childhood onset pervasive developmental disorder. For admissions between ages 15 to 17, the predominant disorders are: paranoid, catatonic, and unspecified (undifferentiated) schizophrenia; schizophreniform disorder; and schizoaffective disorder. A distribution by age group and specific disorders showing the number of admissions included in the category "schizophrenia and related disorders" is available from SRB/NIMH.



BEST COPY AVAILABLE

[2]The surveys of State and county mental hospitals and private psychiatric hospitals were designed to sample a cohort of admissions during a 1-month period who were then followed for an additional 3-month period. The treatment data reported for admissions to State and county mental hospitals and private psychiatric hospitals include those types of treatment provided to admissions through their date of discharge or at the end of the 3-month followup period, whichever occurred first (see the Technical Appendix for details of the survey designs).

[3]In tables 16 and 17, median length of stay for admissions under age 18 is reported by age, sex, and race, and by primary diagnosis for each type of inpatient psychiatric service. In the surveys of State and county mental hospitals and private psychiatric hospitals, length of stay for admissions under age 18 was calculated based on admission cohorts; 33 percent of the admissions to State and county mental hospitals and 19 percent of the admissions to private psychiatric hospitals were still in treatment at the end of the survey period. Median length of stay is a positional measure that divides all admissions into two groups of equal size. Fifty percent of all admissions have a length of stay shorter than the median; 50 percent, a length of stay that is longer than the median. Results are comparable across the three types of inpatient psychiatric services surveyed. However, it should be noted that a positional measure, such as median length of stay, will produce results that may differ from other measures of central tendency, such as mean length of stay.

## Note

Since admissions to the separate inpatient psychiatric services of non-Federal general hospitals have relatively short lengths of stay, the patient characteristics of admissions and discharges are essentially equivalent. Hence, this publication refers to all patients as admissions.

The analyses presented in this publication on patient diagnosis, referral source, and types of treatment received have excluded comparisons made with the category "other," as shown on tables 4 through 12. These "other" categories have been included on the tables in order to report their contribution to the percentage distributions. Since these are residual categories, their inclusion in the analysis section of this report would not provide useful comparisons.

## References

Sowder, B.J.; Burt, M.R.; Rosenstein, M.J.; and Milazzo-Sayre, L.J. Series CN No. 6, Use of Psychiatric Facilities by Children and Youth, United States, 1975. Rockville, Md.: National Institute of Mental Health, 1981.

Spitzer, R.L.; and Cantwell, D.P. The DSM-III classification of the psychiatric disorders of infancy, childhood, and adolescence. Journal of the American Academy of Child Psychiatry 9:356-369, 1980.

Thompson, J.W.; and Goldman, H.H. Statistical Note 163. The NIMH Translation From DSM-II/ICDA-8 to DSM-III/ICD-9-CM Using Grouped Codes. Rockville, Md.: National Institute of Mental Health, 1983.



BEST COPY AVAILABLE

**Table 1. Number, percent distribution, and rate per 100,000 civilian population[1] of admissions under age 18 to selected inpatient psychiatric services, by age, sex, and race: United States, 1980**

| Age, sex, and race | Inpatient psychiatric services | | | | | | |
|---|---|---|---|---|---|---|---|
| | Total | State and county mental hospitals | Private psychiatric hospitals | Non-Federal general hospitals | | | |
| | | | | Total | Public | Nonpublic | Multiservice |
| | | | | **Number** | | | |
| Total, under 18 . | 81,532 | 16,612 | 16,735 | 48,185 | 10,420 | 33,175 | 4,590 |
| Age | | | | | | | |
| Under 10 ..... | 3,883 | 829 | 720 | 2,334 | 1,148 | 987 | * |
| 10-14 ..... | 22,885 | 4,955 | 4,893 | 13,037 | 3,215 | 8,923 | 899 |
| 15-17 ..... | 54,764 | 10,828 | 11,122 | 32,814 | 6,057 | 23,265 | 3,492 |
| Sex | | | | | | | |
| Male ..... | 43,222 | 11,498 | 9,386 | 22,338 | 4,957 | 15,401 | 1,980 |
| Female ..... | 38,310 | 5,114 | 7,349 | 25,847 | 5,463 | 17,774 | 2,610 |
| Race | | | | | | | |
| White ..... | 66,938 | 12,432 | 14,735 | 39,771 | 7,824 | 28,000 | 3,947 |
| All other races | 14,594 | 4,180 | 2,000 | 8,414 | 2,596 | 5,175 | 643 |
| | | | | **Percent distribution** | | | |
| Total, under 18 . | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Age | | | | | | | |
| Under 10 ..... | 4.8 | 5.0 | 4.3 | 4.8 | 11.0 | 3.0 | * |
| 10-14 ..... | 28.1 | 29.8 | 29.2 | 27.1 | 30.9 | 26.9 | 19.6 |
| 15-17 ..... | 67.2 | 65.2 | 66.5 | 68.1 | 58.1 | 70.1 | 76.1 |
| Sex | | | | | | | |
| Male ..... | 53.0 | 69.2 | 56.1 | 46.4 | 47.6 | 46.4 | 43.1 |
| Female ..... | 47.0 | 30.8 | 43.9 | 53.6 | 52.4 | 53.6 | 56.9 |
| Race | | | | | | | |
| White ..... | 82.1 | 74.8 | 88.0 | 82.5 | 75.1 | 84.4 | 86.0 |
| All other races | 17.9 | 25.2 | 12.0 | 17.5 | 24.9 | 15.6 | 14.0 |
| | | | | **Rate per 100,000 civilian population** | | | |
| Total, under 18 . | 128.1 | 26.1 | 26.3 | 75.7 | 16.4 | 52.1 | 7.2 |
| Age | | | | | | | |
| Under 10 ..... | 11.7 | 2.5 | 2.2 | 7.1 | 3.5 | 3.0 | * |
| 10-14 ..... | 125.5 | 27.2 | 26.8 | 71.5 | 17.6 | 48.9 | 4.9 |
| 15-17 ..... | 442.8 | 87.6 | 89.9 | 265.3 | 49.0 | 188.1 | 28.2 |
| Sex | | | | | | | |
| Male ..... | 132.9 | 35.4 | 28.9 | 68.7 | 15.2 | 47.4 | 6.1 |
| Female ..... | 123.1 | 16.4 | 23.6 | 83.0 | 17.5 | 57.1 | 8.4 |
| Race | | | | | | | |
| White ..... | 127.5 | 23.7 | 28.1 | 75.8 | 14.9 | 53.3 | 7.5 |
| All other races | 130.9 | 37.5 | 17.9 | 75.5 | 23.3 | 46.4 | 5.8 |

[1]Population estimates used as denominators for rate computations are from the Current Population Reports of the U.S. Bureau of the Census, Series P-25, No. 929, table 3, p.19.

*Five or fewer sample cases; estimate not shown because it does not meet standards of reliability.

**Note:** Percentages may not add to 100% due to rounding.



BEST COPY AVAILABLE

**Table 2. Percent distribution of admissions under age 18 to selected inpatient psychiatric services, by age and sex: United States, 1980**

| Age and sex | Inpatient psychiatric services | | | |
|---|---|---|---|---|
| | Total | State and county mental hospitals | Private psychiatric hospitals | Non-Federal general hospitals |
| Under 10 .. | 3,883 | 829 | 720 | 2,334 |
| Male .... | 66% | 92% | 77% | 54% |
| Female .. | 34 | * | 23 | 46 |
| 10-14 ..... | 22,885 | 4,955 | 4,893 | 13,037 |
| Male .... | 51% | 70% | 59% | 40% |
| Female .. | 49 | 30 | 41 | 60 |
| 15-17 ..... | 54,764 | 10,828 | 11,122 | 32,814 |
| Male .... | 53% | 67% | 53% | 48% |
| Female .. | 47 | 33 | 47 | 52 |

*Five or fewer sample cases; estimate not shown because it does not meet standards of reliability.

**Table 3. Percent distribution of admissions under age 18 to selected inpatient psychiatric services, by age and race: United States, 1980**

| Age and race | Inpatient psychiatric services | | | |
|---|---|---|---|---|
| | Total | State and county mental hospitals | Private psychiatric hospitals | Non-Federal general hospitals |
| Under 10 ..... | 3,883 | 829 | 720 | 2,334 |
| White ..... | 72% | 56% | 79% | 76% |
| All other races | 28 | 44 | 21 | * |
| 10-14 ..... | 22,885 | 4,955 | 4,893 | 13,037 |
| White ..... | 84% | 69% | 86% | 89% |
| All other races | 16 | 31 | 14 | 11 |
| 15-17 ..... | 54,764 | 10,828 | 11,122 | 32,814 |
| White ..... | 82% | 79% | 90% | 80% |
| All other races | 18 | 21 | 10 | 20 |

*Five or fewer sample cases; estimate not shown because it does not meet standards of reliability.

**Table 4. Percent distribution of admissions under age 18 to selected inpatient psychiatric services, by age and selected primary diagnoses: United States, 1980**

| Age and selected primary diagnoses | Inpatient psychiatric services | | | |
|---|---|---|---|---|
| | Total | State and county mental hospitals | Private psychiatric hospitals | Non-Federal general hospitals |
| Total, under 18 ..... | 81,532 | 16,612 | 16,735 | 48,185 |
| Alcohol-related disorders... | 2.6% | 6.7% | 2.1% | 1.3% |
| Drug-related disorders ..... | 5.0 | 10.3 | 2.5 | 4.0 |
| Affective disorders ..... | 17.9 | 9.5 | 29.7 | 16.8 |
| Schizophrenia and related disorders ..... | 11.9 | 13.3 | 12.6 | 11.2 |
| Personality disorders ..... | 7.1 | 10.2 | 8.3 | 5.6 |
| Pre-adult disorders ..... | 22.4 | 26.5 | 26.8 | 19.4 |
| Other nonpsychotic disorders | 24.3 | 13.4 | 13.5 | 31.8 |
| Other ..... | 8.9 | 10.1 | 4.7 | 10.0 |
| Under 10 ..... | 3,883 | 829 | 720 | 2,334 |
| Alcohol-related disorders... | - | - | - | - |
| Drug-related disorders ..... | - | - | - | - |
| Affective disorders ..... | * | - | * | * |
| Schizophrenia and related disorders ..... | 34.1 | * | 15.4 | 39.7 |
| Personality disorders ..... | * | - | * | - |
| Pre-adult disorders ..... | 37.7 | 33.9 | 55.6 | 33.5 |
| Other nonpsychotic disorders | 16.5 | * | * | * |
| Other ..... | 6.8 | * | * | - |
| 10-14 ..... | 22,885 | 4,955 | 4,893 | 13,037 |
| Alcohol-related disorders... | * | * | * | * |
| Drug-related disorders ..... | 3.5 | * | * | * |
| Affective disorders ..... | 14.4 | 11.6 | 27.7 | 10.5 |
| Schizophrenia and related disorders ..... | 6.6 | 4.4 | 9.9 | * |
| Personality disorders ..... | 3.1 | * | 7.8 | * |
| Pre-adult disorders ..... | 33.6 | 48.1 | 37.0 | 26.7 |
| Other nonpsychotic disorders | 28.5 | 15.0 | 12.1 | 39.8 |
| Other ..... | 9.2 | 13.5 | 4.5 | 9.4 |
| 15-17 ..... | 54,764 | 10,828 | 11,122 | 32,814 |
| Alcohol-related disorders... | 3.3% | 10.1% | 2.9% | 1.2% |
| Drug-related disorders ..... | 6.0 | 14.5 | 3.5 | 4.0 |
| Affective disorders ..... | 20.3 | 9.2 | 32.0 | 20.1 |
| Schizophrenia and related disorders ..... | 12.6 | 15.7 | 13.5 | 11.2 |
| Personality disorders ..... | 9.2 | 13.7 | 9.0 | 7.8 |
| Pre-adult disorders ..... | 16.6 | 16.1 | 20.4 | 15.5 |
| Other nonpsychotic disorders | 23.1 | 12.9 | 14.4 | 29.3 |
| Other ..... | 9.0 | 7.7 | 4.3 | 11.0 |

*Five or fewer sample cases; estimate not shown because it does not meet standards of reliability.

**Note:** Percentages may not add to 100% due to rounding.


BEST COPY AVAILABLE

**Table 5. Percent distribution of admissions under age 18 to selected inpatient psychiatric services, by sex and selected primary diagnoses: United States, 1980**

| Sex and selected primary diagnoses | Inpatient psychiatric services | | | |
|---|---|---|---|---|
| | Total | State and county mental hospitals | Private psychiatric hospitals | Non-Federal general hospitals |
| Male | 43,222 | 11,498 | 9,386 | 22,338 |
| Alcohol-related disorders | 4.1% | 7.4% | 2.9% | 2.8% |
| Drug-related disorders | 6.3 | 9.3 | 3.3 | * |
| Affective disorders | 13.5 | 7.4 | 22.7 | 12.8 |
| Schizophrenia and related disorders | 13.1 | 14.4 | 15.6 | 11.4 |
| Personality disorders | 7.0 | 9.5 | 8.8 | 5.0 |
| Pre-adult disorders | 27.4 | 28.5 | 29.7 | 25.9 |
| Other nonpsychotic disorders | 16.7 | 12.0 | 12.4 | 26.4 |
| Other | 9.0 | 11.5 | 4.7 | 9.6 |
| Female | 38,310 | 5,114 | 7,349 | 25,847 |
| Alcohol-related disorders | 0.9% | 5.1% | * | - |
| Drug-related disorders | 3.5 | * | 1.4 | 2.2 |
| Affective disorders | 22.9 | 14.1 | 38.6 | 20.2 |
| Schizophrenia and related disorders | 10.5 | 10.8 | 8.8 | 11.0 |
| Personality disorders | 7.1 | 11.8 | 7.7 | 6.0 |
| Pre-adult disorders | 16.6 | 22.0 | 23.0 | 13.8 |
| Other nonpsychotic disorders | 29.6 | 16.6 | 14.8 | 36.4 |
| Other | 8.8 | 7.0 | 4.7 | 10.4 |

*Five or fewer sample cases; estimate not shown because it does not meet standards of reliability.

**Note:** Percentages may not add to 100% due to rounding.



BEST COPY AVAILABLE

**Table 6. Percent distribution of admissions under age 18 to selected inpatient psychiatric services, by race and selected primary diagnoses: United States, 1980**

| Race and selected primary diagnoses | Inpatient psychiatric services | | | |
|---|---|---|---|---|
| | Total | State and county mental hospitals | Private psychiatric hospitals | Non-Federal general hospitals |
| White | 66,938 | 12,432 | 14,735 | 39,771 |
| Alcohol-related disorders | 2.7% | 8.4% | 2.3% | 1.1% |
| Drug-related disorders | 4.6 | 11.5 | 2.8 | 3.2 |
| Affective disorders | 17.6 | 9.4 | 29.7 | 15.6 |
| Schizophrenia and related disorders | 10.0 | 6.4 | 10.9 | 10.8 |
| Personality disorders | 6.9 | 12.2 | 8.4 | 4.6 |
| Pre-adult disorders | 23.5 | 28.4 | 27.1 | 20.7 |
| Other nonpsychotic disorders | 26.3 | 14.3 | 14.3 | 34.6 |
| Other | 8.3 | 9.3 | 4.6 | 9.4 |
| All other races | 14,594 | 4,180 | 2,000 | 8,414 |
| Alcohol-related disorders | * | * | * | * |
| Drug-related disorders | * | * | * | * |
| Affective disorders | 19.6 | 9.8 | 29.1 | 22.2 |
| Schizophrenia and related disorders | 20.5 | 33.7 | 25.2 | 12.7 |
| Personality disorders | 7.9 | * | 7.2 | 10.0 |
| Pre-adult disorders | 17.1 | 20.9 | 24.6 | 13.4 |
| Other nonpsychotic disorders | 14.8 | 10.6 | 7.4 | 18.6 |
| Other | 11.7 | 12.5 | 5.6 | 12.8 |

*Five or fewer sample cases; estimate not shown because it does not meet standards of reliability.

**Note:** Percentages may not add to 100% due to rounding.

**Table 7. Percent distribution of admissions under age 18 to selected inpatient psychiatric services, by source of referral: United States, 1980**

| Source of referral | Inpatient psychiatric services | | | |
|---|---|---|---|---|
| | Total | State and county mental hospitals | Private psychiatric hospitals | Non-Federal general hospitals |
| Total, under 18 ..... | 81,532 | 16,612 | 16,735 | 48,185 |
| Self ..... | 5.5% | 6.4% | 4.6% | 5.5% |
| Family or friend ..... | 25.9 | 12.0 | 19.3 | 33.1 |
| Police ..... | 4.7 | 7.9 | 1.8 | 4.6 |
| Court or correction agency .. | 10.5 | 23.6 | 9.0 | 6.4 |
| Private psychiatrist . | 18.8 | 2.4 | 31.2 | 20.1 |
| Other physician ..... | 8.1 | 4.8 | 7.3 | 9.6 |
| Outpatient psychiatric clinic or service .. | 7.1 | 13.1 | 8.4 | 4.5 |
| Community mental health center ..... | 3.3 | 5.8 | 3.6 | 2.3 |
| Other ..... | 16.1 | 24.0 | 14.7 | 13.8 |

**Note:** Percentages may not add to 100% due to rounding.

**Table 8. Percent distribution of admissions under age 18 to selected inpatient psychiatric services, by sex and source of referral: United States, 1980**

| Sex and source of referral | Inpatient psychiatric services | | | |
|---|---|---|---|---|
| | Total | State and county mental hospitals | Private psychiatric hospitals | Non-Federal general hospitals |
| Male | 43,222 | 11,498 | 9,386 | 22,338 |
| Self | 6.6% | 8.0% | 4.8% | 6.6% |
| Family or friend | 22.4 | 11.7 | 18.1 | 29.7 |
| Police | 5.3 | 6.5 | 2.3 | 5.9 |
| Court or correction agency | 13.1 | 23.5 | 11.2 | 8.6 |
| Private psychiatrist | 17.9 | 2.5 | 30.5 | 20.6 |
| Other physician | 7.3 | 5.3 | 7.2 | 8.3 |
| Outpatient psychiatric clinic or service | 7.1 | 14.2 | 7.4 | 3.4 |
| Community mental health center | 3.4 | 7.0 | 2.5 | 2.0 |
| Other | 16.8 | 21.2 | 15.9 | 14.9 |
| Female | 38,310 | 5,114 | 7,349 | 5,847 |
| Self | 4.3% | * | 4.4% | 4.6% |
| Family or friend | 30.0 | 12.7 | 20.9 | 36.0 |
| Police | 4.1 | 11.2 | 1.2 | 3.5 |
| Court or correction agency | 7.5 | 23.7 | 6.3 | 4.6 |
| Private psychiatrist | 19.7 | * | 32.0 | 19.7 |
| Other physician | 9.1 | * | 7.5 | 10.7 |
| Outpatient psychiatric clinic or service | 6.9 | 10.5 | 9.7 | 5.5 |
| Community mental health center | 3.2 | * | 5.0 | 2.6 |
| Other | 15.3 | 30.3 | 13.1 | 12.9 |

*Five or fewer sample cases; estimate not shown because it does not meet standards of reliability.

**Note:** Percentages may not add to 100% due to rounding.

**Table 9. Percent distribution of admissions under age 18 to selected inpatient psychiatric services, by race and source of referral: United States, 1980**

| Race and source of referral | Inpatient psychiatric services | | | |
|---|---|---|---|---|
| | Total | State and county mental hospitals | Private psychiatric hospitals | Non-Federal general hospitals |
| White | 66,938 | 12,432 | 14,735 | 39,771 |
| Self | 5.5% | 7.5% | 5.1% | 5.0% |
| Family or friend | 26.4 | 12.3 | 20.4 | 33.0 |
| Police | 4.8 | 9.4 | 1.5 | 4.7 |
| Court or correction agency | 10.0 | 23.3 | 8.7 | 6.3 |
| Private psychiatrist | 20.8 | 2.7 | 32.8 | 22.0 |
| Other physician | 8.3 | 3.3 | 6.8 | 10.4 |
| Outpatient psychiatric clinic or service | 7.0 | 12.6 | 7.3 | 5.2 |
| Community mental health center | 3.7 | 7.2 | 3.2 | 2.8 |
| Other | 13.5 | 21.7 | 14.2 | 10.6 |
| All other races | 14,594 | 4,180 | 2,000 | 8,414 |
| Self | 5.8% | * | * | * |
| Family or friend | 23.9 | 10.9 | 11.1 | 33.4 |
| Police | 4.2 | * | * | * |
| Court or correction agency | 12.6 | 24.4 | 11.5 | * |
| Private psychiatrist | 9.5 | * | 18.9 | * |
| Other physician | 7.5 | 9.2 | 11.3 | * |
| Outpatient psychiatric clinic or service | 7.1 | 14.7 | 16.6 | * |
| Community mental health center | 1.4 | * | 6.4 | - |
| Other | 28.1 | 30.9 | 18.4 | 29.0 |

*Five or fewer sample cases; estimate not shown because it does not meet standards of reliability.

**Note:** Percentages may not add to 100% due to rounding.

**Table 10. Percent distribution of admissions under age 18 to selected inpatient psychiatric services, by type of treatment: United States, 1980**

| Type of treatment | Inpatient psychiatric services | | | |
|---|---|---|---|---|
| | Total | State and county mental hospitals | Private psychiatric hospitals | Non-Federal general hospitals |
| Total, under 18 ..... | 81,532 | 16,612 | 16,735 | 48,185 |
| Individual therapy .. | 89.1% | 79.3% | 95.5% | 90.2% |
| Family therapy ..... | 38.1 | 28.5 | 53.0 | 36.3 |
| Group therapy ..... | 62.5 | 58.5 | 76.8 | 58.8 |
| Drug therapy ..... | 42.5 | 43.1 | 42.7 | 42.2 |
| Self-care skill training ..... | 16.8 | 25.6 | 20.1 | 12.7 |
| Social skill training | 36.0 | 40.4 | 39.9 | 33.1 |
| Activity therapies .. | 72.7 | 64.4 | 79.7 | 73.2 |
| Education ..... | 34.7 | 50.5 | 47.4 | 24.8 |
| Other[1] ..... | 14.5 | 27.6 | 12.4 | 10.7 |

[1]This category includes those admissions under age 18 for whom "no psychiatric treatment was rendered during their hospitalization as follows: less than 1 percent in private psychiatric hospitals; 2 percent or less in non-Federal general hospitals; and less than 8 percent in State and county mental hospitals.

**Note:** Patients may have received more than one type of treatment. Thus, percentages may add to more than 100%.

**Table 11. Percent distribution of admissions under age 18 to selected inpatient psychiatric services, by sex and type of treatment: United States, 1980**

| Sex and type of treatment | Inpatient psychiatric services | | | |
|---|---|---|---|---|
| | Total | State and county mental hospitals | Private psychiatric hospitals | Non-Federal general hospitals |
| Male ..... | 43,222 | 11,498 | 9,386 | 22,338 |
| Individual therapy. | 87.9% | 74.9% | 95.5% | 91.4% |
| Family therapy .... | 40.0 | 27.5 | 52.8 | 41.0 |
| Group therapy ..... | 64.4 | 57.4 | 76.6 | 63.0 |
| Drug therapy ..... | 41.2 | 39.2 | 44.5 | 40.8 |
| Self-care skill training ..... | 17.4 | 24.6 | 22.3 | 11.5 |
| Social skill training ..... | 35.9 | 35.4 | 42.3 | 33.5 |
| Activity therapies. | 72.0 | 60.1 | 79.2 | 75.2 |
| Education ..... | 37.3 | 46.7 | 47.3 | 28.4 |
| Other[1] ..... | 17.5 | 31.6 | 12.5 | 12.5 |
| Female ..... | 38,310 | 5,114 | 7,349 | 25,847 |
| Individual therapy. | 90.4% | 89.4% | 95.5% | 89.1% |
| Family therapy .... | 36.0 | 30.8 | 53.2 | 32.2 |
| Group therapy ..... | 60.2 | 61.0 | 77.1 | 55.2 |
| Drug therapy ..... | 44.0 | 51.9 | 40.4 | 43.5 |
| Self-care skill training ..... | 16.3 | 27.8 | 17.4 | 13.6 |
| Social skill training ..... | 36.0 | 51.6 | 36.7 | 32.7 |
| Activity therapies. | 73.5 | 74.1 | 80.4 | 71.5 |
| Education ..... | 31.7 | 59.0 | 47.5 | 21.7 |
| Other[1] ..... | 11.1 | 18.8 | 12.4 | 9.2 |

[1]This category includes those admissions under age 18 for whom "no psychiatric treatment was rendered during their hospitalization as follows: less than 1 percent in private psychiatric hospitals; 2 percent or less in non-Federal general hospitals; and less than 8 percent in State and county mental hospitals.

**Note:** Patients may have received more than one type of treatment. Thus, percentages may add to more than 100%.

**Table 12. Percent distribution of admissions under age 18 to selected inpatient psychiatric services, by race and type of treatment: United States, 1980**

| Race and type of treatment | Inpatient psychiatric services | | | |
|---|---|---|---|---|
| | Total | State and county mental hospitals | Private psychiatric hospitals | Non-Federal general hospitals |
| White ..... | 66,938 | 12,432 | 14,735 | 39,771 |
| Individual therapy. | 88.7% | 76.6% | 95.7% | 89.9% |
| Family therapy .... | 39.3 | 28.4 | 54.3 | 37.1 |
| Group therapy ..... | 63.3 | 54.9 | 77.3 | 60.7 |
| Drug therapy ..... | 40.7 | 36.3 | 42.0 | 41.5 |
| Self-care skill training ..... | 16.7 | 24.8 | 19.8 | 13.0 |
| Social skill training ..... | 37.9 | 40.9 | 40.1 | 36.2 |
| Activity therapies. | 73.1 | 61.8 | 80.2 | 73.9 |
| Education ..... | 34.9 | 48.2 | 47.8 | 26.0 |
| Other[1] ..... | 15.4 | 31.2 | 13.3 | 11.2 |
| All other races ..... | 14,594 | 4,180 | 2,000 | 8,414 |
| Individual therapy. | 90.6% | 87.5% | 93.7% | 91.5% |
| Family therapy .... | 32.8 | 28.9 | 43.1 | 32.4 |
| Group therapy ..... | 58.7 | 69.2 | 73.5 | 49.9 |
| Drug therapy ..... | 51.0 | 63.4 | 47.8 | 45.6 |
| Self-care skill training ..... | 17.5 | 28.0 | 22.2 | 11.2 |
| Social skill training ..... | 26.9 | 38.8 | 37.9 | 18.3 |
| Activity therapies. | 71.2 | 72.1 | 76.4 | 69.6 |
| Education ..... | 33.6 | 57.2 | 44.4 | 19.2 |
| Other[1] ..... | 10.2 | 17.0 | 5.8 | 8.3 |

[1]This category includes those admissions under age 18 for whom "no psychiatric treatment was rendered during their hospitalization as follows: less than 1 percent in private psychiatric hospitals; 2 percent or less in non-Federal general hospitals; and less than 8 percent in State and county mental hospitals.

**Note:** Patients may have received more than one type of treatment. Thus, percentages may add to more than 100%.

**Table 13. Percent distribution of admissions under age 18 to selected inpatient psychiatric services, by length of stay: United States, 1980**

| Length of stay | Inpatient psychiatric services | | | |
|---|---|---|---|---|
| | Total | State and county mental hospitals | Private psychiatric hospitals | Non-Federal general hospitals |
| Total, under 18 .... | 81,532 | 16,612 | 16,735 | 48,185 |
| Less than 8 days . | 22.6% | 16.7% | 13.3% | 27.8% |
| 8-14 days ..... | 18.2 | 7.1 | 9.2 | 25.2 |
| 15-21 days ..... | 12.2 | 10.7 | 10.3 | 13.5 |
| 22-28 days ..... | 7.5 | 3.8 | 9.0 | 8.3 |
| 29-42 days ..... | 12.4 | 6.4 | 13.5 | 14.1 |
| 43-56 days ..... | 5.3 | 8.5 | 8.6 | 3.0 |
| 57-90 days ..... | 8.7 | 11.6 | 12.4 | 6.4 |
| More than 90 days[1] | 13.1 | 35.3 | 23.7 | 1.8 |

[1]Patients who were still in treatment at the end of a 90 day followup period are included in this category.

**Note:** Percentages may not add to 100% due to rounding.

**Table 14. Percent distribution of admissions under age 18 to selected inpatient psychiatric services, by sex and length of stay: United States, 1980**

| Sex and length of stay | Inpatient psychiatric services | | | |
|---|---|---|---|---|
| | Total | State and county mental hospitals | Private psychiatric hospitals | Non-Federal general hospitals |
| Male ..... | 43,222 | 11,498 | 9,386 | 22,338 |
| Less than 8 days . | 19.9% | 16.8% | 14.4% | 23.9% |
| 8-14 days ..... | 15.1 | 7.4 | 8.5 | 21.9 |
| 15-21 days ..... | 13.9 | 13.3 | 11.7 | 15.1 |
| 22-28 days ..... | 6.7 | 4.8 | 8.8 | 6.8 |
| 29-42 days ..... | 13.8 | 3.5 | 12.0 | 19.9 |
| 43-56 days ..... | 5.3 | 6.6 | 7.9 | * |
| 57-90 days ..... | 9.1 | 10.4 | 13.7 | 6.5 |
| More than 90 days[1] | 16.1 | 37.3 | 23.1 | 2.2 |
| Female ..... | 38,310 | 5,114 | 7,349 | 25,847 |
| Less than 8 days . | 25.5% | 16.5% | 12.0% | 31.2% |
| 8-14 days ..... | 21.8 | * | 10.2 | 28.1 |
| 15-21 days ..... | 10.4 | * | 8.5 | 12.1 |
| 22-28 days ..... | 8.5 | * | 9.2 | 9.6 |
| 29-42 days ..... | 10.8 | 13.0 | 15.4 | 9.0 |
| 43-56 days ..... | 5.2 | 12.9 | 9.6 | * |
| 57-90 days ..... | 8.2 | 14.2 | 10.7 | 6.2 |
| More than 90 days[1] | 9.7 | 30.6 | 24.5 | * |

[1]Patients who were still in treatment at the end of a 90 day followup period are included in this category.

*Five or fewer sample cases; estimate not shown because it does not meet standards of reliability.

**Note:** Percentages may not add to 100% due to rounding.

**Table 15. Percent distribution of admissions under age 18 to selected inpatient psychiatric services, by race and length of stay: United States, 1980**

| Race and length of stay | Inpatient psychiatric services | | | |
|---|---|---|---|---|
| | Total | State and county mental hospitals | Private psychiatric hospitals | Non-Federal general hospitals |
| White ..... | 66,938 | 12,432 | 14,735 | 39,771 |
| Less than 8 days . | 22.7% | 19.8% | 12.6% | 27.4% |
| 8-14 days ..... | 17.4 | 8.4 | 9.2 | 23.2 |
| 15-21 days ..... | 11.4 | 6.5 | 9.8 | 13.5 |
| 22-28 days ..... | 7.6 | 3.0 | 9.6 | 8.2 |
| 29-42 days ..... | 13.4 | 6.4 | 13.5 | 15.5 |
| 43-56 days ..... | 5.4 | 10.2 | 8.6 | 2.7 |
| 57-90 days ..... | 9.4 | 12.4 | 12.2 | 7.4 |
| More than 90 days[1] | 12.8 | 33.2 | 24.4 | 2.0 |
| All other races .... | 14,594 | 4,180 | 2,000 | 8,414 |
| Less than 8 days . | 21.8% | 7.7% | 19.0% | 29.5% |
| 8-14 days ..... | 22.2 | * | 9.2 | 34.8 |
| 15-21 days ..... | 16.0 | 22.9 | 13.4 | 13.2 |
| 22-28 days ..... | 7.3 | * | * | * |
| 29-42 days ..... | 7.9 | * | 13.0 | * |
| 43-56 days ..... | 4.7 | * | 8.6 | * |
| 57-90 days ..... | 5.3 | 9.0 | 14.1 | * |
| More than 90 days[1] | 14.7 | 41.3 | 18.4 | * |

[1]Patients who were still in treatment at the end of a 90 day followup period are included in this category.

*Five or fewer sample cases; estimate not shown because it does not meet standards of reliability.

**Note:** Percentages may not add to 100% due to rounding.

**Table 16. Median days of stay in inpatient service for admissions under age 18 to selected inpatient psychiatric services, by age, sex, and race: United States, 1980**

| Age, sex, and race | Inpatient psychiatric services | | |
|---|---|---|---|
| | State and county mental hospitals | Private psychiatric hospitals | Non-Federal general hospitals |
| Total, under 18 . | 54 | 36 | 14 |
| Under 10 ..... | 92 | 33 | 21 |
| 10-14 ..... | 92 | 42 | 18 |
| 15-17 ..... | 29 | 33 | 12 |
| Male ..... | 52 | 35 | 16 |
| Under 10 ..... | 92 | 48 | 18 |
| 10-14 ..... | * | 42 | 32 |
| 15-17 ..... | 21 | 31 | 13 |
| Female ..... | 55 | 36 | 11 |
| Under 10 ..... | ** | 33 | 26 |
| 10-14 ..... | 65 | 41 | 11 |
| 15-17 ..... | 39 | 35 | 11 |
| White ..... | 54 | 36 | 14 |
| Under 10 ..... | 53 | 48 | 26 |
| 10-14 ..... | 92 | 44 | 20 |
| 15-17 ..... | 33 | 33 | 13 |
| All other races | 57 | 32 | 11 |
| Under 10 ..... | 92 | 33 | 20 |
| 10-14 ..... | 92 | 35 | 15 |
| 15-17 ..... | 23 | 30 | 11 |

*Since over one-half of the admissions in this group were not discharged during the survey period, median days of stay could not be determined.

**Based on five or fewer sample cases; median days of stay not shown because it does not meet standards of reliability.

**Table 17. Median days of stay in inpatient service for admissions under age 18 to selected inpatient psychiatric services, by selected primary diagnoses: United States, 1980**

| Selected primary diagnoses | Inpatient psychiatric services | | |
|---|---|---|---|
| | State and county mental hospitals | Private psychiatric hospitals | Non-Federal general hospitals |
| Affective disorders ..... | 65 | 44 | 15 |
| Schizophrenia and related disorders ..... | 91 | 39 | 18 |
| Personality disorders ..... | 54 | 37 | 16 |
| Pre-adult disorders ..... | 68 | 34 | 29 |

## Technical Appendix

## 1980 Sample Surveys
## Admissions to Psychiatric Inpatient Services
## State and County Mental Hospitals
## Private Psychiatric Hospitals
## Non-Federal General Hospitals

## Survey Designs and Procedures*

### A. Survey Designs

#### Scope of the surveys

The surveys of admissions to State and county mental hospitals and private psychiatric hospitals were conducted during the period July 1980 to October 1980 by the Survey and Reports Branch (SRB), National Institute of Mental Health (NIMH), in cooperation with State mental health agencies. The survey of discharges from the separate psychiatric inpatient services of non-Federal general hospitals was conducted during the month of February, 1981 by the American Hospital Association (AHA) under contract to NIMH. The target populations included all patients admitted to the inpatient services of State and county mental hospitals and private psychiatric hospitals, and all discharges from the separate psychiatric inpatient services of non-Federal general hospitals located in the 50 States and the District of Columbia.

Total additions to State and county mental hospitals consist of admissions (new and readmissions) and returns from long-term leave. The survey population included only new admissions and readmissions, and excluded returns from long-term leave, whereas totals used in ratio adjustment (described below) included returns from long-term leave. The exclusion of these latter cases from the survey population could produce a slight upward bias in the estimates; however, since the number of returns from long-term leave was small in relation to other types of admissions, such bias should be negligible. Hereafter, the term admissions is used.

#### Sampling frames and sample sizes

The sampling frames (universes) for the surveys consisted of all hospitals reported in the most recent NIMH Inventory of Mental Health Organizations at the time of the surveys. This inventory collected data on services, caseload, staffing, and expenditures. The caseload data on admissions or discharges formed the basis for the stratification of the universe of hospital inpatient services, as described below.

For State and county mental hospitals, the original universe for the survey consisted of 274 hospitals. The target sample consisted of 169 hospitals. Of these, 10 refused to participate, and 3 were out of scope: 1 had closed, and 2 had been incorrectly classified. Thus, 156 hospitals participated in the 1980 survey and provided data for 4,867 sample inpatient admissions.

*Prepared by Survey and Reports Branch, Division of Biometry and Applied Sciences, National Institute of Mental Health.

For private psychiatric hospitals, the original universe consisted of 180 hospitals. The target sample consisted of all 180 hospitals. Of these, 26 refused to participate. Thus, 154 hospitals participated in the 1980 survey and provided data for 6,958 sample inpatient admissions.

For non-Federal general hospital separate psychiatric inpatient services, the original universe consisted of 1,060 hospitals. The target sample consisted of 294 hospitals. Of these, 47 refused to participate and 13 were out of scope: 4 had closed and 9 had been incorrectly classified. Thus, 234 hospitals participated in the 1981 survey and provided data for 5,101 sample inpatient discharges.

**Sample designs**

The private psychiatric hospital survey utilized a one-stage stratified probability design. Hospitals were divided into two primary strata, defined by the annual number of admissions reported in the 1978 Inventory, as shown in table I. Hospitals in the small stratum were requested to include in the sample all patients admitted during the month of July 1980. Hospitals in the large stratum were requested to include only those admissions during the month whose patient case number ended with an odd digit.

The State and county mental hospital and the non-Federal general hospital surveys utilized stratified probability designs selected in two stages, as described below.

In the State and county mental hospital survey, all hospitals in States identified by the Indian Health Service as having a large proportion of Native American population were selected into a certainty stratum. Hospitals in the following states were included in the certainty stratum: Alaska, Arizona, Colorado, Idaho, Kansas, Montana, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington, and Wyoming. Remaining hospitals were stratified by size into four primary strata, defined by the annual number of inpatient admissions reported in the 1979 Inventory, as shown in table I.

In the non-Federal general hospital survey, all hospitals were stratified by 3 ownership/auspice categories (public, nonpublic, and multiservice/CMHC) and by 5 size categories, defined by the annual number of inpatient discharges reported in the 1978 Inventory, as shown in table I.

In these two latter surveys, hospitals in each primary stratum were listed by State, and sampling of hospitals was systematic, with a random start within the first sampling interval.

The second sampling stage consisted of the selection of a sample of patients admitted to sample hospitals during the month of July 1980 for State and county mental hospitals, and of patients discharged during the month of February 1981 for non-Federal general hospital separate psychiatric inpatient services. Hence, each sample hospital reported

data for a cluster of patients included in the second stage sample. Each sample hospital was asked to list all inpatient admissions (discharges) during the sample month on a form provided by NIMH, and to complete patient questionnaires for each patient identified on one of the predesignated sample lines. The listing booklets were designed with differential sampling fractions, so that larger programs sampled a smaller proportion of their patients, thus maintaining approximately equal reporting levels among all sampled hospitals. Sampling was systematic, with a random start within the first sampling interval.

**Data collection and instruments**

The sample hospitals completed patient questionnaires on each designated sample patient. Most items were obtained from the hospital records by medical records administrator staff. The data collection instruments contained similar data items for each survey, although they were structured somewhat differently. The form used in the survey of non-Federal general hospitals was a one-part form, while those used in the surveys of State and county mental hospitals and private psychiatric hospitals were two-part forms. The first part of the form requested information pertaining to the admission of the patient and was completed at the time of admission, upon discharge, or at the end of the study period. The second part of the form requested data about the treatment of the patient, as well as a discharge summary if the patient was discharged. This second part was completed at the end of the 3-month study period or at the time of the patient's discharge from the inpatient service, whichever occurred first. In the survey of non-Federal general hospitals, both the individual questionnaires for discharged patients and the listing booklet were mailed by the sample hospitals to AHA for editing and processing. For the remaining two surveys, these materials were mailed to NIMH.

**Limitations of the Designs**

**Nonresponse**

As in any survey, there were three possible types of nonresponse:

1. failure of a sample hospital to participate in the survey

2. failure to obtain data on a patient designated as a sample case

3. failure to obtain specific items of information (age, diagnosis, etc.) for individual sample patients.

Estimates presented in this report were adjusted for the failure of a sample hospital to respond through the use of an adjustment factor (number of selected hospitals divided by number of respondent hospitals) in conjunction with inflation by the inverse of the first stage sampling fraction. The number of sample hospitals that did not respond to the surveys is detailed in table I, by strata. No instances occurred of failure to obtain data on an admission designated as a sample case in the State and county mental hospital and private psychiatric hospital

surveys. In the non-Federal general hospital survey, data were adjusted for failure to obtain data on discharges designated as sample cases (four cases) by use of an adjustment factor (number of designated sample cases divided by the number of respondent sample cases within the same hospital). Data were adjusted for nonresponse to specific items as follows: records were sorted on a core set of variables, such as sex, age-category, diagnostic-category, stratum, region, and patient number, and the value of the variable from the previous record was substituted for the unknown value. Unless otherwise footnoted, the percentage of cases with missing data was 5 percent or less for any given variable.

**Seasonality**

Data collected in this survey have been inflated to represent the annual number and characteristics of admissions or discharges for the types of inpatient services surveyed, as described below. However, patients were sampled only for a one-month period. Seasonal variations in the number and characteristics of patient admissions or discharges were not considered in the estimation or variance calculations employed for these surveys.

**Estimation**

Estimation was carried out in three steps:

1. Within each primary stratum, patient records were weighted by the product of the inverse of the sampling fraction(s), the nonresponse adjustment factor(s) (described above), and the ratio of total annual admissions or discharges (described below) to total sample-month admissions or discharges. This weight has the effect of inflating sample cases to annual facility totals and inflating sample facility totals to stratum totals.

2. Within each primary stratum, weights developed in step one were multiplied by a stratum-level ratio adjustment factor defined as the ratio of the total annual admissions or discharges for all hospitals in the stratum, to the inflated total count of admissions, as calculated from the procedure described in step one. The purpose of this ratio adjustment was to take into account all relevant information in the estimation process, thereby reducing the variability of the estimate. The effect of this ratio adjustment was to bring the estimates derived from the sample into agreement with the known total number of admissions or discharges.

3. Resulting stratum level estimates were summed across strata to derive totals and subtotals for different domains of interest.

## D. Reliability of Estimates

**Background**

Because estimates presented in this report are based on sampling, they are likely to differ from figures that would have been obtained from

complete enumerations of the universes using the same instruments. Results are subject to both sampling and nonsampling errors. Nonsampling errors include biases due to inaccurate reporting, processing, and measurement, as well as error due to nonresponse and incomplete reporting. These types of errors cannot be measured, but have been minimized to the extent possible through the procedures used for data collection, editing, and quality control.

The sampling error (standard error) of a statistic is inversely proportional to the square root of the number of observations in the sample. Thus, as the sample size increases, the standard error decreases. The standard error measures the variability that occurs by chance, because only a sample rather than the entire universe is surveyed. The chances are about two out of three that an estimate from the sample differs by less than one standard error from the value that would be obtained from a complete emuneration. The chances are about 95 out of 100 that the difference is less than twice the standard error, and about 99 out of 100 that it is less than three times as large.

In this report, statistical inference is based on the construction of 95 percent confidence intervals for estimates (0.05 level of significance). All statements of comparison in the text relating to differences such as "higher than", "less than", etc., indicate that the differences are statistically significant at the 0.05 level or better. Terms such as "similar to" or "no difference" mean that statistically, no difference exists between the estimates being compared. Lack of comment on the difference between any two estimates does not imply that a test was completed and there was a finding of no significance.

**Calculation of Standard Errors**

Standard errors were calculated for a broad range of subtotals within age, sex, and race subclasses through the use of SESUDAAN: Standard Errors Program for Computing of Standardized Rates from Sample Survey Data developed at the Research Triangle Institute by B.V. Shah. This procedure computes estimated sampling variance through the use of a Taylor series approximation. As applied to data from the present surveys, variance estimates for subtotals were calculated for each primary stratum and then summed across strata to derive standard errors for domains of interest. The variance estimate for each primary stratum includes both the between-facility and the within-facility components of variance, with corrections for finite populations applied at both sampling stages. Since preliminary work suggested that use of stratum-level ratio adjustment did not appreciably affect the variance estimates, all variance estimates were calculated on ratio-adjusted subtotals.

**Relative standard errors of subtotal estimates**

The relative standard error of a subtotal estimate is obtained by dividing the standard error of the estimate by the estimate itself and is expressed as a percent of the estimate. Approximate relative standard errors for aggregate subtotal estimates are presented in figure I. Approximately 30 curves were generated for each survey by inputting the relative variance

and the inverse of weighted aggregate totals obtained from SESUDAAN into the GLM (General Linear Models) procedure in SAS (Statistical Analysis System). GLM uses the method of least squares to obtain the a and b parameters (listed in table II) and the predicted relative variance. From this, the predicted relative standard error was calculated, and was plotted against aggregate subtotal estimates using the GPLOT procedure in SAS/GRAPH. The 30 curves generated were very similar, and the generalized curves presented in figure I represent the most conservative of the set of curves for each survey. These generalized relative standard error curves indicate the magnitude of the relative standard error for estimates of various sizes, and should be interpreted as approximate rather than exact for any specific estimate.

Alternatively, the relative standard error, RSE(x), for a subtotal estimate may be calculated directly using the following formula, where x is the size of the estimate and a and b are the parameters listed in table II. Direct computation will produce more precise results than use of the approximations in figure I. Direct computation should be used when comparing specific subgroups of non-Federal general hospitals (i.e., public, nonpublic, multiservice), since the curve shown in figure I represents the aggregate of all three subgroups of general hospitals.

$$RSE(x) = \sqrt{a + \frac{b}{x}} \cdot 100$$

**Relative standard errors of rates**

The approximate relative standard error for a rate, in which the denominator is the United States population or one or more of the age-sex-race subgroups of the United States population, is equivalent to the relative standard error of the numerator of the rate, as presented in figure I.

**Relative standard errors of estimated percentages**

The approximate relative standard error of an estimated percentage, expressed in percentage terms, may be determined by use of figure II. The relative standard error of the percent is obtained from the appropriate curve, and may be interpolated for percentages based on denominators not shown in the figure. These relative standard errors should be interpreted as approximate rather than exact for any specific percentage.

Alternatively, relative standard errors for percents, RSE(p), may be calculated directly using the following formula, where p is the percentage of interest, x is the base of the percentage, and b is the parameter listed in table II.

$$RSE(p) = \sqrt{\frac{b}{x} \cdot \frac{(100-p)}{p}} \cdot 100$$

**Relative standard errors of medians**

In this report, medians were calculated on ungrouped data using the PROC UNIVARIATE procedure from SAS. The sampling variability of an estimated median depends on the form of the distribution as well as the size of the base upon which it is calculated. An approximate method for calculating the standard error of the median when the underlying population is normally distributed is to multiply the standard error of the mean by a factor of 1.2538. For estimated medians in this report, estimates were converted into logs in order to normalize distributions, and standard errors of the mean were calculated. The anti-logs were then taken, and the resultant standard errors were multiplied by 1.2538 to obtain an approximate standard error for the median. Confidence intervals were then calculated around the median obtained from PROC UNIVARIATE using this estimated standard error.

Alternatively, 95 percent confidence intervals for medians may be approximated as follows:

1. Determine the relative standard error, expressed in percentage terms, of the estimate of 50 percent from the relevant distribution in figure II;

2. Convert the relative standard error to the standard error, i.e.,

$$\frac{RSE \cdot EST}{100}$$

3. Add to and subtract from 50 percent twice the standard error determined in step (2);

4. Using the distribution of the characteristic, calculate the values from the distribution corresponding to the two points established in step (3). These values will be the upper and lower limits for the 95 percent confidence interval.

**Estimates of differences between two statistics**

The standard error of a difference is approximately the square root of the sum of the squares of each standard error considered separately. This formula will represent the actual standard error quite accurately for the difference between separate and uncorrelated characteristics, although it is only a rough approximation in most other cases.

**Estimates of statistical sums**

The standard error of the sum of a number of independent estimates is the square root of the sum of the squares of the standard errors of the separate estimates.

**Table I. Universe and sample counts for State and county mental hospitals, private psychiatric hospitals, and the separate psychiatric inpatient services of non-Federal general hospitals, by primary strata**

| Primary strata | Number of hospitals | | | | | Number of patients in actual sample |
|---|---|---|---|---|---|---|
| | Universe | Sample | Responding in scope | Out of scope | Non-responding | |
| **Annual Admissions** | | | | | | **Admissions** |
| | | | **State and county mental hospitals** | | | |
| Total, all strata . | 274 | 169 | 156 | 3 | 10 | 4,867 |
| 0-999 ..... | 123 | 61 | 55 | 1 | 5 | 1,806 |
| 1000-2499 ..... | 86 | 43 | 40 | 1 | 2 | 1,339 |
| 2500-4999 ..... | 33 | 33 | 31 | - | 2 | 885 |
| 5000+ ..... | 7 | 7 | 6 | - | 1 | 132 |
| Indian Health (all sizes) ... | 25 | 25 | 24 | 1 | - | 705 |
| | | | **Private psychiatric hospitals** | | | |
| Total, all strata . | 180 | 180 | 154 | - | 26 | 6,958 |
| 0-719 ..... | 105 | 105 | 90 | - | 15 | 3,596 |
| 720+ ..... | 75 | 75 | 64 | - | 11 | 3,362 |
| **Annual Discharges** | | | | | | **Discharges** |
| | | | **Non-Federal general hospitals** | | | |
| Total, all strata . | 1,060 | 294 | 234 | 13 | 47 | 5,101 |
| **Public** | | | | | | |
| Total, all strata . | 160 | 73 | 55 | 2 | 16 | 1,118 |
| 0-399 ..... | 51 | 17 | 12 | - | 5 | 330 |
| 400-799 ..... | 53 | 18 | 14 | - | 4 | 301 |
| 800-1499 ..... | 36 | 18 | 12 | 2 | 4 | 248 |
| 1500+ ..... | 14 | 14 | 11 | - | 3 | 196 |
| Unknown ..... | 6 | 6 | 6 | - | - | 43 |
| **Nonpublic** | | | | | | |
| Total, all strata . | 727 | 129 | 106 | 4 | 19 | 2,338 |
| 0-399 ..... | 246 | 31 | 25 | 1 | 5 | 810 |
| 400-799 ..... | 315 | 39 | 34 | - | 5 | 723 |
| 800-1499 ..... | 132 | 33 | 26 | 1 | 6 | 515 |
| 1500+ ..... | 17 | 17 | 15 | - | 2 | 201 |
| Unknown ..... | 17 | 9 | 6 | 2 | 1 | 89 |
| **Multiservice/CMHC** | | | | | | |
| Total, all strata . | 173 | 92 | 73 | 7 | 12 | 1,645 |
| 0-399 ..... | 51 | 25 | 21 | 2 | 2 | 501 |
| 400-799 ..... | 51 | 26 | 19 | - | 7 | 435 |
| 800-1499 ..... | 30 | 15 | 12 | - | 3 | 216 |
| 1500+ ..... | 10 | 10 | 10 | - | - | 118 |
| Unknown ..... | 31 | 16 | 11 | 5 | - | 375 |

**Table II. Parameters for calculating approximate standard errors of estimated numbers and percentages for selected characteristics from the 1980 patient sample surveys of State and county mental hospitals, private psychiatric hospitals, and the separate psychiatric inpatient services of non-Federal general hospitals**

| Type of characteristic | Parameter | |
|---|---|---|
| | a | b |
| **State and county mental hospitals** | | |
| **Admissions** | | |
| Age by sex by race ..... | 0.00207 | 109.987 |
| Age by sex and race by: | | |
| Diagnosis ..... | 0.02286 | 92.598 |
| Payment ..... | 0.02486 | 95.669 |
| Length of stay ..... | 0.01446 | 94.612 |
| **Private psychiatric hospitals** | | |
| **Admissions** | | |
| Age by sex by race ..... | 0.00026 | 25.728 |
| Age by sex and race by: | | |
| Diagnosis ..... | 0.00174 | 24.380 |
| Payment ..... | 0.00555 | 23.293 |
| Length of stay ..... | 0.00137 | 23.001 |
| **Non-Federal general hospitals** | | |
| **Discharges** | | |
| Total hospitals | | |
| Age by sex by race ..... | 0.00246 | 204.005 |
| Age by sex and race by: | | |
| Diagnosis ..... | 0.00684 | 204.844 |
| Payment ..... | 0.00706 | 220.418 |
| Length of stay ..... | 0.00363 | 210.455 |
| Public hospitals | | |
| Age by sex by race .... | 0.00770 | 130.805 |
| Nonpublic hospitals | | |
| Age by sex by race .... | 0.00615 | 255.056 |
| Multiservice/CMHC hospitals | | |
| Age by sex by race .... | 0.01845 | 47.318 |

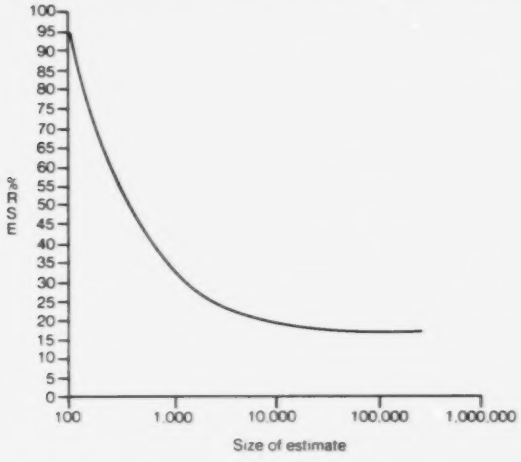




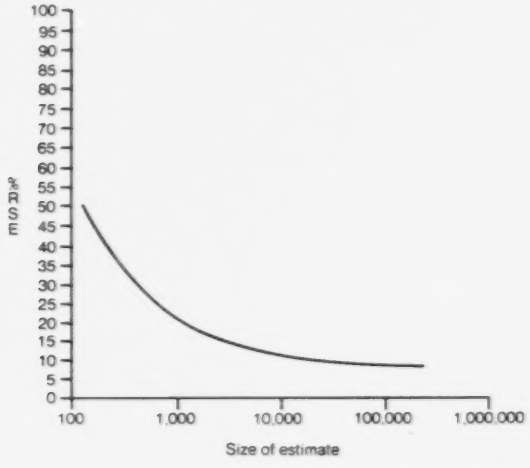
BEST COPY AVAILABLE

## Figure I.
## Relative standard errors for estimated subtotals, 1980

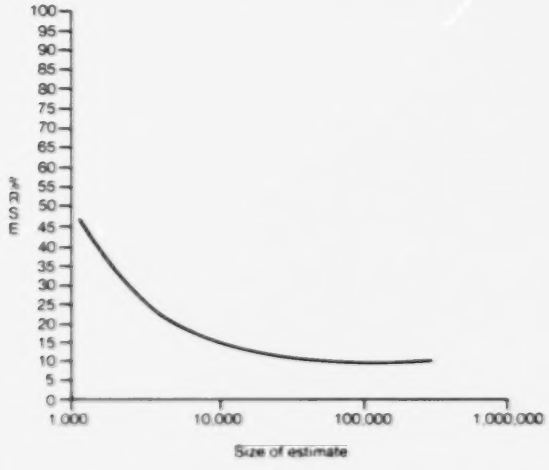
### State and county mental hospitals




### Private psychiatric hospitals




### Non-Federal general hospitals

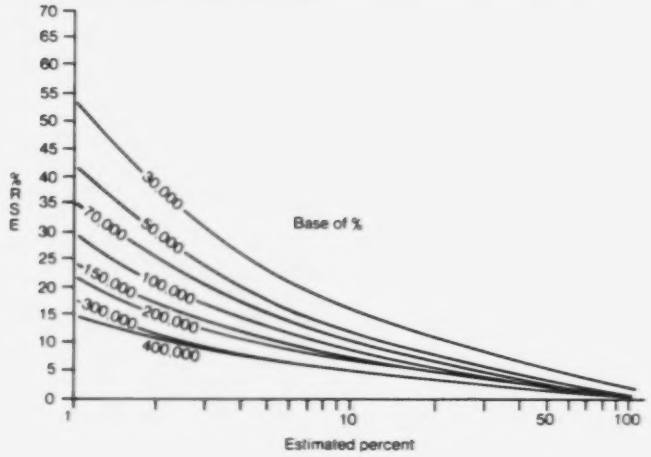




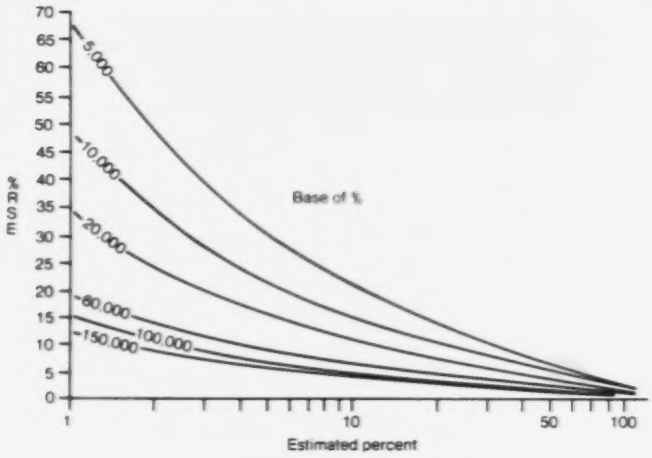

BEST COPY AVAILABLE

## Figure II.
## Relative standard errors for estimated percentages, 1980

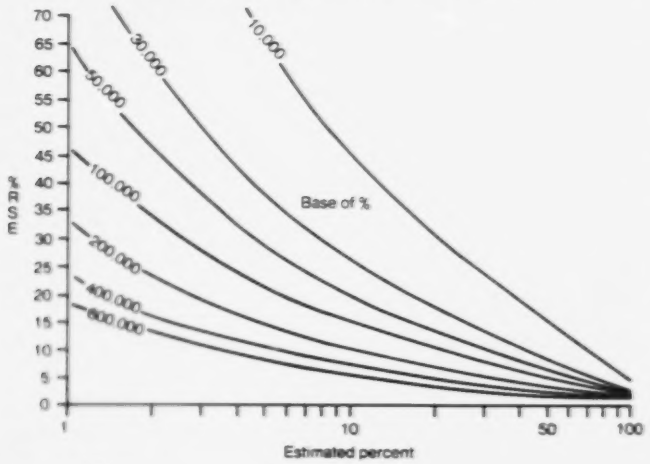
### State and county mental hospitals




### Private psychiatric hospitals




### Non-Federal general hospitals






BEST COPY AVAILABLE

DEPARTMENT OF
HEALTH & HUMAN SERVICES

Public Health Service
Alcohol, Drug Abuse, and
Mental Health Administration
Rockville MD 20857

DHHS Publication No. (ADM) 86-1451
Printed 1986



BEST COPY AVAILABLE